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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,035	12/30/2003	Jaroslaw Sydir	Intel-014PUS	9234

7590 06/11/2008

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EXAMINER	
PATEL, NIRAV B	
ART UNIT	PAPER NUMBER
2135	

MAIL DATE	DELIVERY MODE
06/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/749,035	SYDIR ET AL.	
	Examiner	Art Unit	
	NIRAV PATEL	2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2008 (Amendment)*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 23-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *21,23 and 24* is/are allowed.

6)☒ Claim(s) *1-5,7-20,25 and 28* is/are rejected.

7)☐ Claim(s) *6,26,27 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/15/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment filed on March 3, 2008 has been entered. Claims 1-21 and 23-29 are pending. Claims 1-8, 21, 26 are amended and Claim 29 are newly added by the applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5, 7, 8, 21, 23-25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) and in view of Vandenhoudt et al (US Pub. No. 2003/0002509).

As per claim 1, Elnathan teaches:

processor (nPcores), which performs various transformations on the packet data, and a switch fabric [Fig. 1, col. 3 lines 50-63]; wherein the buffer provides data to the switch fabric [Fig. 1-3].

Krishna teaches:

a crypto system; an alignment buffer to receive header data and ciphered data from the crypto system, the crypto system encrypting data to form ciphered data so that an

intended receiver with a correct cryptographic key may decrypt the ciphered data [Fig. 4, col. 5 lines 30-37, 51-67, col. 6 lines 1-3, Fig. 5, Fig. 6, col. 7 lines 63-67, col. 8 lines 1-11]. Krishna teaches the alignment buffer provides data in blocks having a predetermined size [col. 6 lines 1-3, col. 5 lines 30-67, Fig. 4].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Krishna with Elnathan, since one would have been motivated to improve performance of the cryptography operation [Krishna, col. 1 lines 66-67, col. 2 line 1] by enabling "cell-based" processing of random-length IP packets [Krishna, col. 3 lines 6-23].

Vandenhoudt teaches:

a switch fabric having a plurality of transmit buffer elements to receive data from the buffer [Fig. 1, 2, 4 paragraph 0023].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Vandenhoudt with Elnathan and Krishna, since one would have been motivated to provide scalable switch fabric without compromising its robustness under high traffic loads [Vandenhoudt, paragraph 0003 lines 6-10, paragraph 0006].

As per claim 2, the rejection of claim 1 is incorporated and Vandenhoudt teaches:

an interface to transmit data from the switch fabric [Fig. 4].

As per claim 5, the rejection of claim 1 is incorporated and Krishna teaches:

the crypto system includes first and second crypto units [Fig. 4, 5].

As per claim 7, the rejection of claim 1 is incorporated and Krishna teaches:

the crypto system includes a plurality of cipher cores [Fig. 4, 5].

As per claim 8, the rejection of claim 7 is incorporated and Krishna teaches:

the plurality of cipher cores correspond to a plurality of cipher algorithms [Fig. 4, 5].

As per claim 25, it encompasses limitations that are similar to limitations of claim 1. Thus, it is rejected with the same rationale applied against claim 1 above.

As per claim 28, the rejection of claim 25 is incorporated and it encompasses limitations that are similar to limitations of claim 24. Thus, it is rejected with the same rationale applied against claim 24 above.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) and in view of Chiang (US Pub. No. 2003/0196132).

As per claim 3, the rejection of claim 2 is incorporated and Vandenhoudt teaches an interface [Fig. 4].

Chiang teaches the interface includes a SPI4 type interface [Fig. 3].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chiang with Elnathan, Krishna and Vandenhoudt, since one would have been motivated to provide a mechanism in a network device that allows for data lines to be deskewed and monitor the skewing of data in the bus [Chiang, paragraph 0006].

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) and in view of "Network Processing Forum – Streaming Interface (NPSI) Implementation Agreement" 2002 (hereinafter "NPF").

As per claim 4, the rejection of claim 2 is incorporated and Vandenhoudt teaches an interface [Fig. 4].

"NPF" discloses: the interface includes a NPSI type interface [Fig. 3].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine "NPF" with Elnathan, Krishna and Vandenhoudt, since one would have been motivated to provide a standard interface for connecting network processing devices ["NPF" page 1, 1.2].

5. Claims 9, 10, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) and in view of Kanai et al (US Patent No. 6,341,335).

As per claim 9, Elnathan teaches:

network processor (nPcores), which performs various transformations on the packet data, and a switch fabric [Fig. 1, col. 3 lines 50-63]; wherein the buffer provides data to the switch fabric [Fig. 1-3].

Krishna teaches:

storing a portion of a packet header in an alignment buffer that has a first storage size; storing a first portion of a first data block of ciphered data from the at least one crypto unit in the alignment buffer, the at least one crypto unit encrypting data for form the ciphered data so that an intended receiver with a correct cryptographic key may decrypt the ciphered data [Fig. 4, col. 5 lines 30-37, 51-67, col. 6 lines 1-3, Fig. 5, Fig. 6, col. 7 lines 63-67, col. 8 lines 1-11]. Krishna teaches the alignment buffer provides the ciphered data in blocks having a predetermined size and transmits the ciphered data [col. 6 lines 1-3, col. 5 lines 30-67, Fig. 4].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Krishna with Elnathan, since one would have been motivated to improve performance of the cryptography operation [Krishna, col. 1 lines

66-67, col. 2 line 1] by enabling "cell-based" processing of random-length IP packets [Krishna, col. 3 lines 6-23].

Vandenhoudt teaches:

transmitting the data from the buffer to a first buffer element in a switch fabric interface unit; transmitting further data block of the data from the buffer to the first buffer element unit, allocating a second buffer element in the switch fabric interface unit; and transmitting the data in the buffer to the second buffer element [Fig. 1, 2, 4 paragraph 0023, 0036, 0043, 0045, 0054, 0057].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Vandenhoudt with Elnathan and Krishna, since one would have been motivated to provide scalable switch fabric without compromising its robustness under high traffic loads [Vandenhoudt, paragraph 0003 lines 6-10, paragraph 0006].

Krishna teaches dividing the packet to 64 bytes (i.e. fixed size cell) and storing the fixed sized cell (64 bytes) into the FIFO buffer [Fig. 4, 5].

Kanai teaches: transmitting further data to the buffer element unit until the buffer element is full [col. 9 lines 13-25].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Kanai with Elnathan, Krishna and Vandenhoudt, since one would have been motivated to prevent reduction of an effective system bus performance caused by an increase in the access latency [Kanai, col. 3 lines 24-26].

As per claim 10, the rejection of claim 9 is incorporated and Krishna teaches:
transmitting data from the at least one crypto unit to a selected one of a plurality of elements in the alignment buffer [Fig. 4, 5].

As per claim 12, the rejection of claim 9 is incorporated and Vandenhoudt teaches:
transmitting the ciphered data from switch fabric interface unit over an interface [Fig. 4, 1].

As per claim 17, the rejection of claim 9 is incorporated and Vandenhoudt teaches:
transmitting the ciphered data to the second buffer element in an amount less than the predetermined number of bytes for an end of packet [paragraph 0057].

6. Claims 11, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) in view of Kanai et al (US Patent No. 6,341,335) and in view of Noehring et al (US Pub. No. 2002/0188839).

As per claim 11, the rejection of claim 9 is incorporated and Noehring teaches:
the alignment buffer includes a number of buffer elements corresponding to a number of processing contexts for the at least one crypto unit [Fig. 3, paragraph 0035 lines 7-9].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Noehring with Elnathan, Krishna, Vandenhoudt and Kanai, since one would have been motivated to achieve high-speed security for IP networks [paragraph 0001 line 5].

As per claim 15, the rejection of claim 9 is incorporated and Noehring teaches:
transmitting the ciphered data from the alignment buffer in an amount that is a multiple of a predetermined number of bytes [paragraph 0034, 0039, 0063].

As per claim 16, the rejection of claim 15 is incorporated and Noehring teaches:
the predetermined number of bytes is 16 [paragraph 0034].

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) in view of Kanai et al (US Patent No. 6,341,335) and in view of Chiang (US Pub. No. 2003/0196132).

As per claim 13, the rejection of claim 12 is incorporated and Vandenhoudt teaches an interface [Fig. 4].
Chiang teaches the interface includes a SPI4 type interface [Fig. 3].
Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chiang with Elnathan, Krishna, Vandenhoudt and

Kanai, since one would have been motivated to provide a mechanism in a network device that allows for data lines to be deskewed and monitor the skewing of data in the bus [Chiang, paragraph 0006].

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) in view of Kanai et al (US Patent No. 6,341,335) and in view of "Network Processing Forum – Streaming Interface (NPSI) Implementation Agreement" 2002 (hereinafter "NPF").

As per claim 14, the rejection of claim 9 is incorporated and Vandenhoudt teaches an interface [Fig. 4].

"NPF" discloses: the interface includes a NPSI type interface [Fig. 3].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine "NPF" with Elnathan, Krishna, Vandenhoudt and Kanai, since one would have been motivated to provide a standard interface for connecting network processing devices ["NPF" page 1, 1.2].

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) and in view of Noehring et al (US Pub. No. 2002/0188839).

As per claim 18, Elnathan teaches:

network processor (nPcores), which performs various transformations on the packet data, and a switch fabric [Fig. 1, col. 3 lines 50-63]; wherein the buffer provides data to the switch fabric [Fig. 1-3].

Krishna teaches:

first and second crypto units each having and predetermined number of processing contexts, the first and second crypto units encrypting data to form ciphered data so that an intended receiver with a correct cryptographic key may decrypt the ciphered data [Fig. 4, col. 5 lines 30-37, 51-67, col. 6 lines 1-3, Fig. 5, Fig. 6, col. 7 lines 63-67, col. 8 lines 1-11]. Krishna teaches the alignment buffer receive the ciphered data from the first and second crypto units [col. 6 lines 1-3, col. 5 lines 30-67, Fig. 4, 5].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Krishna with Elnathan, since one would have been motivated to improve performance of the cryptography operation [Krishna, col. 1 lines 66-67, col. 2 line 1] by enabling “cell-based” processing of random-length IP packets [Krishna, col. 3 lines 6-23].

Vandenhoudt teaches:

a switch fabric interface unit having a plurality of transmit buffer elements to receive data from the buffer in an amount that is multiple of a predetermined number of bytes and an interface to transmit the ciphered data from the switch fabric [Fig. 1, 2, 4 paragraph 0023, 0036, 0041].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Vandenhoudt with Elnathan and Krishna, since one would have been motivated to provide scalable switch fabric without compromising its robustness under high traffic loads [Vandenhoudt, paragraph 0003 lines 6-10, paragraph 0006].

Noehring teaches:

the alignment buffer having a respective element for each of the plurality of processing contexts to receive the ciphered data form the first and second crypto unit; [Fig. 3, paragraph 0035 lines 7-9]. Further, Noehring teaches crypto units each having a plurality of cipher core [Fig. 3] and the buffer elements to receive data in an amount that is multiple of a predetermined number of bytes [paragraph 0034].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Noehring with Elnathan, Krishna and Vandenhoudt, since one would have been motivated to achieve high-speed security for IP networks [paragraph 0001 line 5].

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) and in view of Chiang (US Pub. No. 2003/0196132).

As per claim 19, the rejection of claim 18 is incorporated and Vandenhoudt teaches an interface [Fig. 4].

Chiang teaches the interface includes a SPI4 type interface [Fig. 3].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chiang with Elnathan, Krishna and Vandenhoudt, since one would have been motivated to provide a mechanism in a network device that allows for data lines to be deskewed and monitor the skewing of data in the bus [Chiang, paragraph 0006].

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Elnathan et al (US Patent No. 7,245,616) in view of Krishna et al (US Patent No. 6,477,646) in view of Vandenhoudt et al (US Pub. No. 2003/0002509) and in view of "Network Processing Forum – Streaming Interface (NPSI) Implementation Agreement" 2002 (hereinafter "NPF").

As per claim 20, the rejection of claim 18 is incorporated and Vandenhoudt teaches an interface [Fig. 4].

"NPF" discloses: the interface includes a NPSI type interface [Fig. 3].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine "NPF" with Elnathan, Krishna and Vandenhoudt, since one would have been motivated to provide a standard interface for connecting network processing devices ["NPF" page 1, 1.2].

Response to Amendment

12. Applicant's amendment filed on March 03, 2008 has been fully considered. Applicant's arguments filed have been fully considered but they are not persuasive.

Regarding to the applicant's arguments to claim 1, Examiner maintains the rejection, since Krishna's invention provides architecture for a cryptography chip, which enables "cell-based" processing of random-length IP packets, The IP packets, which may be of variable and unknown size, are spit into smaller fixed-size "cells". The fixed-sized cells are then processed and reassembled into packets (e.g. the incoming IP packets may be split into 64-bytes cells for processing). The memory on chip stores a few 64-bytes cells, context information, keys etc for processing the one or more packets. The control processor sequences the computational units to apply the specific algorithm specified in the context information to the cells that have been previously fetched. The control processor also writes out the processed result in cell size "chunks". The control processor uses different keys and different cryptographic formats [col. 3 lines 45-60]. As shown in Fig. 2, cryptographic chip includes a FIFO buffer, which reads the IP packets, where the random-length packets are split into fixed-sized cells. The context buffer stores "context" information for the associated fixed-sized cells, such as encryption keys, data, algorithm...etc. The fixed-sized cells are then processed in pipelined fashion by one of the crypto engines. The output cells are then stored in an output FIFO in order to write the packets back out to the system memory via PCI bus. Further, Krishna discloses the data align barrel shifter unit which serves as a packet splitting unit to divide the incoming packets into fixed-sized cells and further,

reassembles those pieces and produces as output fixed sized cells. The output fragment size is controlled in one of two configurable ways: through a length field with each output data descriptor, or through a global output data buffer length field. Therefore, Krishna teaches the crypto chip architecture along with the alignment mechanism to process the variable size packet data, wherein only fixed sized (predetermined size) cells are processed and stored into the chip/processor as claimed. In this case, Krishna teaches the claim subject matter and the combination of Elnathan, Krishna and Vandenhoudt teaches the claim limitation.

Regarding to argument to claim 7, Examiner maintains, since Krishna teaches that the fixed sized cells are processed in a pipelined fashion by one of the "crypto" engines. Additional crypto engines are incorporated to support other current or future cryptography algorithms [col. 5 lines 1-10]. Therefore, Krishna teaches plurality of cipher cores as claimed.

For the above reasons, it is believed that the rejections should be sustained, for independent claims 1, 9, 18, 25.

The Applicant is reminded that additional modification to clarify the claimed language/invention is necessary for further consideration and distinction from the prior art.

Allowable Subject Matter

13. Claims 6, 26, 27, 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 21, 23-24 are allowed.

Conclusion

14. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirav Patel whose telephone number is 571-272-5936. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax and phone numbers for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

NBP

6/7/08 */KIMYEN VU/*

Supervisory Patent Examiner, Art Unit 2135